



Towards co-ownership in forest management: Analysis of a pioneering case 'Bosland' (Flanders, Belgium) through transition lenses



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ABSTRACT

Forest management in Western-Europe is evolving towards multifunctionality and higher levels of sustainability. Co-owned forest managing models, where different owners collaborate and forest users participate however, are still rather an exception of a rule. Bosland (literally forest-land) in Flanders (Belgium) is a statutory partnership of several public forest owners and stakeholders, managing an area of about 22,000 ha of previously fragmented forest relicts. By looking at this case through transition lenses we describe a pioneering case in forest management where a new way of management is adopted more geared towards management for coherence across multiple ecosystem services and across a multitude of stakeholders. By use of a learning history we were able to reconstruct the change trajectory of Bosland. Analysis of this change trajectory through transition lenses aided to identify essential key features in which Bosland differs from 'management as usual' approaches:

- (i) a distinctive paradigm shift towards management for coherence;
- (ii) a long term vision that informs and guides the short-term action agenda;
- (iii) a bottom up approach focusing on participation and co-creation.

The methods used and lessons learnt in Bosland can thus be highly interesting for the wider community involved in forest and nature management.

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1. Introduction

Belgium is one of the most densely populated countries in Europe, with a population density of 364.3 inhabitants per square kilometre (Eurostat, 2011a) and it has a relatively low forest cover of 23% (Eurostat, 2011b) compared to the European average of 111.92 p/km² and 47% respectively. The European Environment Agency assessed the country on its land use and recommended that: 'Belgium must manage land use carefully in the future. The challenge is on the one hand to allow for the development of social and economic activities based on land, and on the other hand, to protect the integrity of natural resource systems and the output of ecosystem goods and services which can also bring economic and social benefits in the long term.' (EEA, 2010). This advice seems especially legitimate for Flanders, the northern part of Belgium, where forested land is scarce and severely fragmented. With a forest land cover of less than 11% (INBO, 2012; Van Herzele, 2006), the forest surface per capita of the region is smaller than any country

in Europe (European Commission, 2011). The remaining forest relicts are of value in multiple ways, as they provide several ecosystem services, such as natural habitats for biodiversity, green refuges and open spaces for recreation, flood regulation, purification of water and air, carbon sequestration and provision of wood and biomass (Hermy et al., 2008; Liekens et al., 2013).

Effectively and coherently deploying the diverse forest-related services involves a wide range of societal actors and thus requires a land management style that is fit to deal with complexity and participation of stakeholders. In that perspective, the 'established' forest management approaches are not well-equipped to deal with these issues in the most effective way. More recently, several tools have been developed that allow forest management (planning) that unites multiple services (Pukkala and Kangas, 1993; Pukkala and Miina, 1997; Wolfslehner et al., 2005). Implementation however lags behind, especially in cases where a broad variety of stakeholders is involved. In addition, land management and planning approaches should go beyond management of one ecosystem and collaborate on a landscape scale, especially in highly urbanised regions such as Flanders. To evolve towards a new kind of multifunctional and actor supported forest management, an approach appropriate to unite the diversity of potential values, services and stakeholders desires or claims needs to be enrolled.

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This switch is quite a challenge for Flanders, because of the current largely disintegrated forest ownership and management: 70% of forest is divided among more than 100,000 private owners (Serbruyns and Luyssaert, 2006). The Flemish government is encouraging cooperation by stimulating private forest owners to unite in forest groups (Van Gossum et al., 2005), organized as subsidized non-profit organizations. Despite these good intentions, co-owned forests supporting multiple purpose management and coordination at a landscape scale remain scarce in Flanders indicating that ‘traditional’ top-down policy instruments are not sufficient/well-suited to achieve that very objective (Van Gossum et al., 2005; Van Gossum et al., 2012).

The current challenges in forest management call for a new approach that actively includes stakeholders in the decision making process by combining bottom up and top down methods. In other words, a change process with a specified direction targeting the culture, structure and practice components of society concurrently is needed. An approach that addresses such kind of challenges is the one of transitions and transition management (Grin et al., 2010). A transition is defined as “a radical, structural change of a societal (sub)system that is the result

of a co-evolution of economic, cultural, technological, ecological and institutional developments at different scale levels” (Kemp et al., 2001). A number of anticipated transitions regarding energy, resources, biodiversity, etc. will require new practices, institutions and policy frameworks to deal with the limited space in a smarter and more sustainable manner. In this paper we reconstruct the change trajectory of ‘Bosland’ using a learning history like approach. Subsequently we examine the history of Bosland by the semantics of transition theory to support identification of innovative aspects and key features that go beyond innovation as usual and which may be of inspiration for a wider public involved in forest management.

2. Material and methods

2.1. Bosland

Bosland (51.17°N 5.34°E) covers the area of three municipalities (Hechtel-Eksel, Overpelt and Lommel) in the North-West of the Limburg province (Fig. 1). Currently the project is managed by a

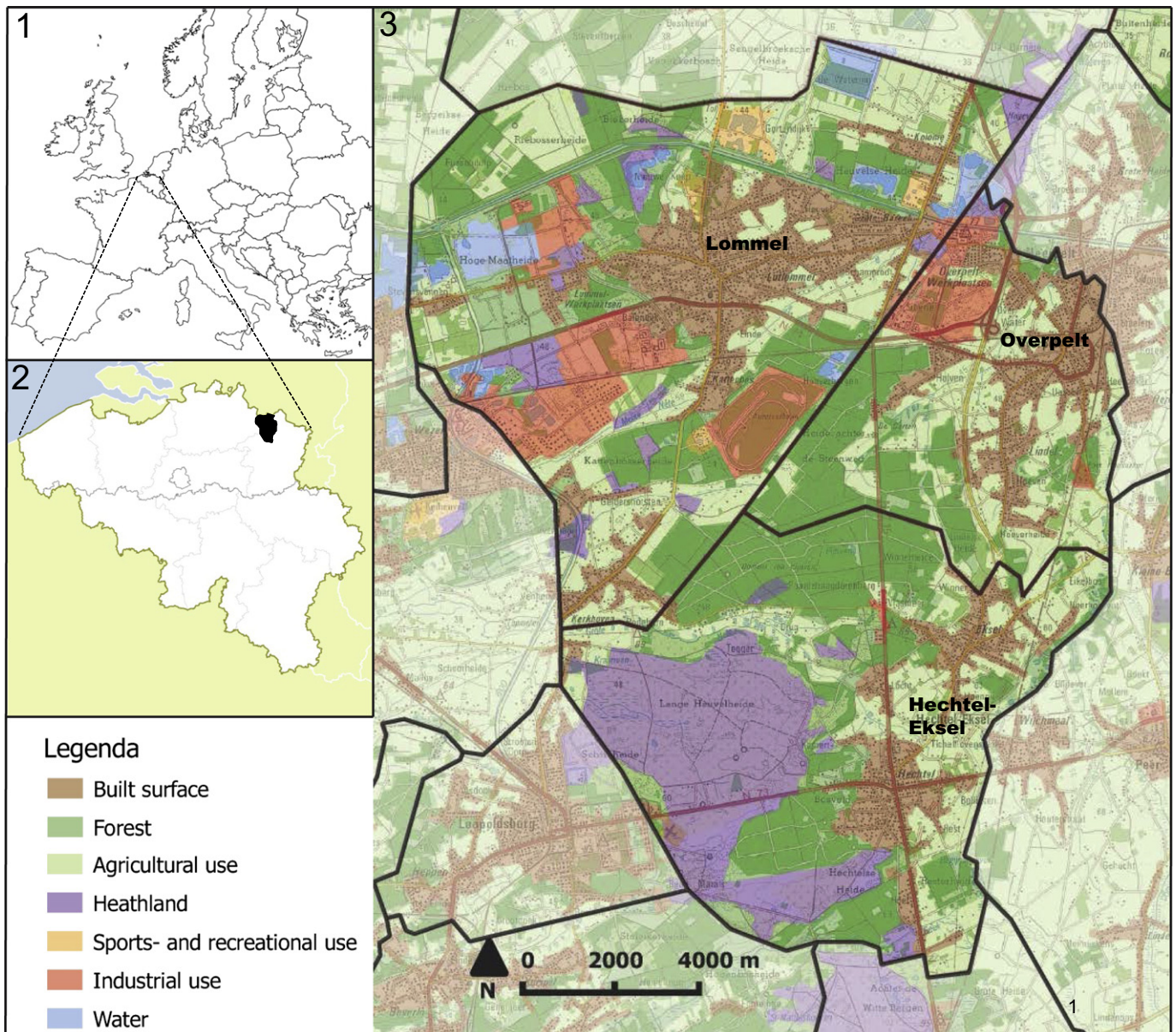


Fig. 1. Situation of Belgium in Europe (left top) and Bosland in Belgium (left middle) and a land-cover map of Bosland (right). The heart of Bosland exists in forests that are used to be managed by the different owners and are now managed together.

partnership of the four different owners (the three municipalities and the Agency for Forest and Nature Management of the Flemish region (Agentschap voor Natuur en Bos, ANB)) and two non-profit organizations (Regionaal Landschap Lage Kempen, a local organization for landscape conservation and Tourisme Limburg, a regional organization promoting tourism). Both non-profit organizations work independently, but the local and regional government respectively has a member in the board of directors, so both organizations can be considered public–private organizations.

Bosland lies on the border of the Campine plateau and almost all soils are characteristically sandy and poor. Until the middle of the 19th century, Bosland was mainly covered by an extensive heath land (Coordination cel Bosland, 2012). Gradually afforestation with conifers took place, *Pinus sylvestris* and *Pinus nigra* are the main tree species. Bosland has a total surface of 22,000 ha of which approximately 17,000 ha consists of open space (Coordination cel Bosland, 2012), containing almost 10,000 ha of nature- and forest area. Public forest covers more than 4500 ha and ownership is divided between the municipalities and the Flemish region. The Flemish region owns about 2260 ha, while the municipalities own about 1850 ha (Lommel), 630 ha (Hechtel-Eksel) and 40 ha (Overpelt). Privately owned forests account for approximately 2250 ha, of which approximately 180 owners with a total of 515 ha are member of the local forest group. Nature outside forests is mainly heathland and grassland and is owned by the Federal state (1497 ha, inaccessible military domain), Natuurpunt (356 ha in management) and the Flemish region (66 ha).

2.2. Learning history

In order to reconstruct the change trajectory that preceded the realization of Bosland, we adopted a learning history approach that we tailored to our specific objective since learning in transition trajectories exceeds the level of an individual organization. Instead it focuses on changes in the wider system: i.e. changes in the collaboration between organization and across networks, the prerequisites for this to happen and how a multitude of stakeholders is involved. The traditional approach of a learning history is to help organizations to learn from their own change and innovation processes (Kleiner and Roth, 1996). Currently, learning histories are also used in policy, for example to evaluate transitions (Willems et al., 2009). Typically three levels of information are used to construct a learning history. In a first step the facts are listed. Secondly main stakeholders are asked to tell their account and give their opinion on the listed facts. In the final step a deeper analysis is made by an external researcher, combining the information of the first two levels (Kleiner and Roth, 1996). Since our focus is on the wider system, we adjusted the learning history approach for our reconstruction to include the following steps (see also Roelofs, 2011):

1. Focus determination

Elaborate discussion of the case with a forest expert and the initiator. This gave us insight in the stakeholders involved and the relevant documents to study.

2. Document analysis

Analysis of all relevant documents. This allowed us to draw up a timeline of the change trajectory.

3. Interviews

Interviews with at least 1 representative of the key stakeholders. This allowed us to include also the perceptions of the stakeholders.

4. Analysis using transition lenses

Analysis of the learning history outcome through the adoption of transition lenses. This allowed us to identify the features where the change trajectory delineated from innovation as usual trajectories.

For the document analysis we collected all the policy documents related to the project: the first long term vision documents (Indeherberg et al., 2006; Andriessen et al., 2007), the extensive management plans (ABO NV, 2010; Econnection, 2012; Gorissen, 2006) and the Bosland master plan (Coordination cel Bosland, 2012). During the creation of these documents several participative processes had taken place: a survey of 200 forest visitors, discussion walks (8) and workshops (10) with all stakeholders, feedback sessions in the municipalities (3) and informative walks for the extensive management plans; brainstorming sessions (4) for the master plan. Reports of these events were available and have been reviewed as well. From these documents, we distilled a timeline that represents the important steps in the change trajectory that preceded the realization of Bosland.

Steps 1 and 2 allowed us to identify key individuals from each important stakeholder group with whom semi-structured interviews were conducted. Interviewees were all closely related to the project, from different types of involved parties (public vs private; municipalities vs Flemish region; profit vs non-profit) and from different 'levels of action' (political; administrative; management). Each interviewee was also asked which other person(s) from other organizations they would suggest for us to interview to validate whether our selection was appropriate. According to the methodology of semi-structured interviewing, we determined key questions beforehand, but gave space and opportunity to the interviewee to bring up new issues. Roughly we asked all of the interviewees to report the history of the Bosland project, to indicate their role in the process and to point out which factors they experienced as facilitating/opposing the transition (the interview guide can be found in Appendix A). All interviews were conducted in 2012 and lasted for about 45 min.

The interviewed stakeholders were the project leader from the governmental Agency for Nature and Forest (ANB) (1); the major of one of the municipalities (2); the head of the public service department for environment of another municipality (3); the manager of the landscape conservation non-profit organization, "Regionaal Landschap Lage Kempen" (4); the regional co-coordinator of the non-profit organization for touristic promotion "Tourisme Limburg" (5); a wood purchaser of a major wood processor in the region (6); and "Natuurpunt", a non-governmental organization on nature protection working in the municipalities (7). "Natuurpunt" was represented by the chairman and the treasurer of the Hechtel-Eksel branch and the two chairmen of the Noord-Limburg branch in a group interview. They wanted to be interviewed together and reached a consensus for every answer. For this reason, their input has been handled as one perception in the learning history.

All interviews were recorded and completely transcribed afterwards. Key messages and features returning in at least 2 of the interviews were retained and used for learning history. We will further on refer to the cited stakeholder with the corresponding number (X) (cf. Kern and Smith, 2008). The information collected in steps 1–3 was then analysed through the lenses of transition theory (see Section 2.1). This aided the identification of novelties and important features in the change trajectory. Combined with a learning history like approach this allows us to represent the Bosland case in a manner that can be useful for the wider community involved in forest and nature management and inspire future change trajectories in forest management.

2.3. Transition theory

2.3.1. The essentials

Transition thinking originated in research focusing on socio-technical systems (Hoogma et al., 2002; Geels, 2002, 2004; Rip and Kemp, 1998), reflexive modernization (Grin et al., 2006), social practices and societal governance (Loorbach, 2007; Rotmans et al., 2000). Transitions are radical shifts from one system to another, implying structural and systemic changes; they encompass co-evolutionary

processes where interactions between societal subsystems influence the dynamics of individual subsystems (Grin et al., 2010). Hence, transitions are complex processes that involve multiple actors and different fields and typically span a long time frame (in terms of multiple decades) (Martens and Rotmans, 2005; Raven et al., 2010).

The transition framework has been developed to understand transitions, to solve persistent problems and to promote sustainable development. Persistent problems are complex problems, deeply entrenched in societal structures and difficult to manage given the diversity of actors and vested interest involved (Loorbach, 2007). The transition framework combines four 'archetypical' phases (Rotmans et al., 2005) and three interacting levels (Geels, 2005) (Fig. 2). During a predevelopment phase no visible changes occur, but a lot of experiments take place, actually preparing the transition by making drastically innovative systemic configurations work on a limited scale. During a subsequent take-off phase, the first societal changes gradually become more visible. Actual up scaling and out scaling are the core of the acceleration phase in which changes in different areas reinforce each other into a broader dynamic/momentum. Finally in the stabilization phase the societal change comes to a rest and the system is in a new but dynamic equilibrium (Martens and Rotmans, 2005).

The societal changes that transitions imply, only take place under certain, favourable circumstances with interactions of changes at three different scale-levels. The meso-level subsystem of society that is undergoing the transition is called the regime. This term indicates elements of inertia and resistance to change, caused by typical elements such as (technological) lock-ins, standing (infra)structures, institutions and vested power relations. The transition multi-level perspective assumes that changes in the regime occur if supported by pressure inducing changes/events on the landscape- or macro-level and at the same time inspired by different successful experiments on the niche- or micro-level (Geels, 2002; Geels and Kemp, 2000). There are many definitions of the regime, but in general we can distinguish two different

conceptualizations. The first is used to describe socio-technical systems (Dosi, 1982; Elzen et al., 2004; Geels, 2002; Nelson and Winter, 1977; Rip and Kemp, 1998; Schot, 1998) and the second is used to describe societal systems (i.e. sectors or regional entities) (Loorbach, 2007; Rotmans et al., 2000, 2005; Van Raak, 2006). These two schools of thought do not exclude each other, rather their differences are merely in focus and tradition. The landscape forms the societal background to the transition, and it consists of social values, political cultures, environmental and economic trend; evolutions on which there is little or no possibility to 'interfere' on an individual basis. The niches are the micro-level of innovation, where, in an experimental and protected environment, shielded from regime pressure and change inertia, novelties are created, tested and diffused (Loorbach, 2007; Raven et al., 2010).

Interaction of the three levels (co-evolution) is needed and niche emergence or development is one of the crucial steps in a transition. Moreover, the niche is the only level that can be steered by individual practitioners with the help of approaches/conceptual frameworks like transition management (TM) or strategic niche management (SNM) (Raven et al., 2008). Thus a transition experiment in a niche can be one of the multiple starting points that can induce a transition (Raven et al., 2010; van den Bosch, 2010).

SNM originated as a new policy perspective on how to modulate transition experiments and the emergence of niches with a high potential for sustainable development. According to SNM, it is possible to facilitate innovation journeys by executing experiments for the creation of technological niches: protected spaces that allow maturing of technologies through co-evolution with user practices and regulatory structures. SNM builds on three internal niche processes: (i) voicing and shaping of expectations and visions, (ii) building of social networks and (iii) an explicit learning process (Raven et al., 2010).

TM is a governance mode that attempts to resolve persistent societal problems. It is an iterative process consisting of four steps: (i) problem structuring and organization of a transition arena; (ii) drafting a

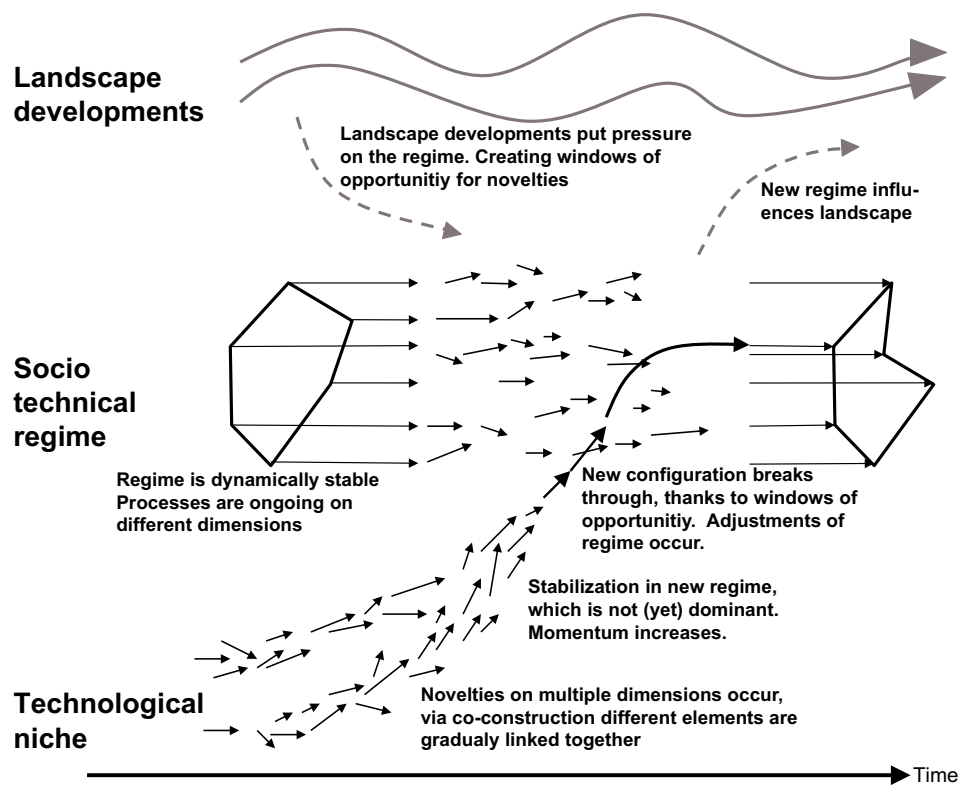


Fig. 2. The multilevel transition framework, with an added time component. Pressure from the landscape opens windows of opportunities and innovations in niches can influence the regime. See Section 2.3.1 for further explanations. After Geels (2005).

transition agenda, visioning and the identification of transition pathways; (iii) defining and performing transition experiments through mobilizing networks; (iv) monitoring, evaluating and lesson drawing, to be fed back in the other steps (Loorbach, 2007). TM focuses more on the regime actors, next to actors in the niche or experiments.

A transition experiment mainly differs from a traditional innovation-experiment by the goal, the time frame, the methods, the context and the learning process; where the former is socially broader, systemic, long-term oriented and characterized by a different learning process of the actors (Table 1) (Raven et al., 2008). In transition experiments, the learning process is more elaborate, including involvement of multiple, divergent fields, social learning (i.e. actors learning from each other through interactive processes about values, norms and goals) (Kemp and Weehuizen, 2005) and double loop learning (i.e. learning questioning the fundamental design, goals and activities) (Argyris, 1976; Kemp and Weehuizen, 2005). Generally, learning in traditional innovation-experiments is more limited to individual learning, to a few fields and to single loop learning (i.e. more technical learning about the use of certain means and instruments within the actual framework (Kemp and Weehuizen, 2005)).

2.3.2. The transition perspective and forest management

Our society today is facing many sustainability problems. According to Rockstrom et al. (2009), we already crossed the sustainable boundaries of our planet for at least three processes: climate change, the nitrogen cycle and biodiversity loss. What is also worrying is that these sustainability problems are often interlinked and influencing each other (Rockstrom et al., 2009). Many of these sustainability problems are grounded in land use. Biodiversity loss for example, is mainly driven by land use changes, such as the conversion of natural ecosystems into agriculture and urban areas (Sala et al., 2000). Given the scale and scope of the challenges in land use today, traditional sectorial thinking is inappropriate to dealing with these systemic problems. The transition (management) approach is strongly focussing on integrated persistent problems (Loorbach and Rotmans, 2010) and has been proposed to steer the needed changes in land use planning (UNEP, 2014).

Forest management in Europe has shifted in recent decades towards multifunctionality (Puettmann et al., 2009). The felling rate has increased from 58% to 62% of increment in Europe between 1990 and 2010 and in the meantime forest management practices increasingly include biodiversity protection (Forest Europe, UNECE and FAO, 2011). Already more than one fifth of European forests are managed primarily to protect water, soil and infrastructure (MCPFE, 2007). The idea that a forest should be managed as a complex adaptive system is gradually getting wider accepted (Puettmann et al., 2009). The ecosystem services concept (MEA, 2005; TEEB, 2011) has strengthened this idea. The ecosystem services framework adopts a more holistic landscape view in which the interconnections between services and with other land-uses are made more explicit. Moreover, the 2011 TEEB-study helped to draw attention to all different services provided by forest and nature

areas and emphasizes the importance of forest and nature on society and vice versa.

This growing perception that ecosystems and societies are interdependent, forming complex social–ecological systems, has promoted the idea that stakeholder participation is a necessity in management (Schultz et al., 2011). It was stated that results of management and assessment of social–ecological systems are improved when the full range of stakeholders is involved (Walker et al., 2002). Sometimes, critics against this vision have been put forward, arguing that involving all stakeholders could for example slow-down decision making or decrease management efficiency by hindering the application of scientific knowledge (du Toit et al., 2004). However, most studies that have empirically tested the impact of stakeholder participation on management show a positive relationship (Brody, 2003; Lebel et al., 2006; Schultz et al., 2011). So it is broadly accepted that involvement of stakeholders throughout the management process is a good way to increase local support (TEEB, 2011), legitimacy (Treffny and Beilin, 2011) and societal learning (Borowski et al., 2008; Garmendia and Stagl, 2010). However, well-functioning coordination mechanisms between different levels of government and stakeholder groups are still rare (MCPFE, 2007).

Traditionally forest and nature areas have been managed with an expert-driven top-down approach with little attention for broad, local stakeholder input (For an example from Germany, see Maier et al., 2014). Recent developments are more oriented towards involvement of stakeholders, but are not always perceived as very successful (Maier et al., 2014). Also in Flanders there are examples of a trend towards more collaboration and stakeholder input. For instance, all public forest owners and private forest owners with a forest larger than 5 ha need to elaborate an “extensive forest management plan” (Flemish Region, 2003). For this plan, forest owners have to make an extensive inventory of their forest (both on a dendrometrical and on an ecological basis), to start up a social participation project to involve all forest stakeholders and to make a projection of future management measures in function of the current situation and the stakeholders' view. The costs involved in making up the management plan are largely paid back by means of a subsidy of €200 per ha. In this way forest owners are forced to consult stakeholders. Moreover collaboration between forest owners was stimulated with an added subsidy of €20 (for more than 3 collaborating forest owners) or €50 (for more than 10 collaborating forest owners) per ha (Flemish Region, 2003).

However, knowledge, perceptions and viewpoints vary greatly among societal stakeholders and forest owners, reflecting the tension between different interests (Van Gossum et al., 2011). In addition, the perceptions co-evolve with the modernization of the social structure of private forest owners (Ziegenspeck et al., 2004). Gradually private forest ownership is changing from the typical agricultural forest owners to people living in cities and shifting the focus towards enjoyment and utilization of timber for own needs, the so called ‘non-agricultural forest owners’ (Kvarda, 2004). Van Gossum et al. (2011) classified Flemish forest owners (public and private) according to their perception towards sustainable forest management and differed between a private property

Table 1

Overview of the characteristics that allow to distinguish a transition experiment from a traditional innovation-experiment (translated from Raven et al., 2008).

	Traditional innovation-experiment	Transition experiment
Starting point	Learning related to solutions (marketing of innovation)	Learning related to social issues
Problem features	Prescribed and simple	Complex and uncertain
Goal	Identification of optimal solution	Contribution to societal change
Time frame	Short and middle term	Long term
Methods	Testing, modifying, demonstrating	Exploring, searching, learning
Learning process	Single-loop, individually, a few fields	Double-loop, social, multiple fields
Actors	Specialised staff (researchers/engineers)	Socially complete alliance
Experimenting context	Controlled context (lab/simulation/testing environment)	Social context
Management context	Traditional project management	Transition management; strategic niche management
	Command and control	Influencing, steering, facilitating

Table 2

Learning history about the change trajectory of Bosland, combining facts from policy documents in column 1, the story of Bosland through semi-structured interviews of key stakeholders (numbers between brackets refer to different interviewees, see 2.2) sporadically complemented with info from the policy documents in column 2 and a transition analysis of the change trajectory of Bosland in column 3.

Bosland timeline	The story of Bosland by the interviewees	Transition analysis of change trajectory of Bosland
<p>-New legislation (2003) leads to exploratory talks (2004) In 2003 a new legislation on forest management was launched. From now on an extensive management plan had to be made up for all public forests (Flemish Region, 2003). In 2004 exploratory talks between the two municipalities, the town and ANB, started.</p>	<p>-The extensive management plan required by the new legislation entailed a significant increase in workload. This fact triggered the governmental Agency for Nature and Forest (ANB) to rethink the traditional top down approach in favour of a more collaborative approach with other forest owners. That way, a better integrated management plan could be developed across different stakeholders while increasing local support for the plan. (1) -This idea was first discussed between ANB and the Hechtel-Eksel municipality. Not only a division of the workload was possible but also the idea came up to co-develop a long term vision for the area on a landscape scale (1,2) -Soon, the city of Lommel joined the discussion (1,2,3). -At first there was a kind of disbelief at the level of some municipalities (1,2). -Previously, a unidirectional collaboration between the municipalities and ANB was common practice. ANB, as forest management experts, imposed rules and legislations about forest management on the municipalities (1,2). Participation of the municipalities was restricted to an information and consultation level. This top-down approach resulted in often disillusioned municipalities: the feeling existed that they couldn't decide what to do in their own forests and that ANB had always an authoritarian finger raised in warning (1,2,5). -But existing prejudices were put aside and the collaboration was started (1,2). -The partners agreed that coordination and cooperation needed to be underpinned by a long term vision for forest management. To achieve this, an intensive consultation process of the local public was set up (1,2,3). -During the first envisioning process several events took place to involve local people (1,2,7). The resulting vision was brought back to the broad stakeholder groups by means of discussion sessions and informative tours in the forest where people could give feedback. -Also in the elaboration of the vision in management plans, the view of the public was crucial. For each of the five management plans, a public session was organized in which the vision was presented and a translation in tangible measures was proposed (ABO NV, 2010; Econnection, 2012; Gorissen, 2006). -Many reactions from the public came, during and after these sessions and they were discussed and included in the management plans or refused. In the latter case a justification was provided (1,2). -The insights were bundled into a long term vision which lay the foundation of the partnership with the four public partners in 2006. In these vision documents the different forest functions (ecological, economical and recreational functions) were described and an equilibrium between the functions was presented on a landscape scale. Where possible, different functions were combined in a certain forest patch, but often the necessary choice for a certain prioritized function was made (Andriessen et al., 2007; Indeherberg et al., 2006). The vision documents consisted of a description of the projected forest functions for every forest patch and sketch maps of the most important ecological, economical and recreational 'network infrastructure' on a landscape scale. -For the first time forest managers of ANB seemed to acknowledge that a forest is more than an isolated area of trees and nature (1,2,5) and other forest users were actively thinking about preserving the common values of the forest, such as certain animal or plant species that need protection (1,2). Moreover, the focus widened from "trees-management" to "landscape-management" (2,3). -Widening the focus was not always easy to cope with in the beginning (1,3). -The involved Bosland actors believed that a co-owned forest would increase legitimacy and active support and would also offer chances on a management perspective to integrate management goals on a landscape scale (1,2,3,7).</p>	<p>-The new legislation induced a <i>process of reflexivity</i> within certain actors from ANB allowing them to rethink their current practices and strategies. This opened up space for the emergence of new solutions and new roles to be adopted: this first phase indicated the first steps of letting go of the traditional management style focussed on 'demand and control' towards a new style more geared towards '<i>facilitation of collaboration</i>'. -At first this was met with scepticism from the approached partners since they were not used to this new role of ANB. -Dialogues between partners 1–3 and the possibility of co-creating a long term vision between the different partners gradually built trust and the collaboration was initiated. → This coincides with what is described as a first phase in transition management processes: setting the scene and exploring transition dynamics. It is also in line with the notion that (mental, financial, temporal) space is an essential feature to rethink common practice.</p> <p>-Together the partnership organized an elaborate participatory trajectory to enrol an <i>envisioning exercise</i> across a multitude of stakeholders. -The outcomes of this exercise was <i>instrumental</i> to inform the <i>management plans</i> and different discussion rounds have been organized to fine-tune these while creating support for and ownership of the vision and management plan. → This coincides with the phase of 'envisioning' in transition while the translation of the vision into management plans is what is referred to as 'anchoring' in transition literature (Nevens et al., 2013). This means that new roles and new activities are anchored into the regime.</p> <p>-The joint envisioning process induced a <i>shift</i> from managing forest patches to managing on a landscape scale. Such paradigm shifts are necessary for the enactment of sustainable development. Rotmans (2012) writes '<i>A persistent problem is that we tend to try to innovate public systems starting from old values and old paradigms. These attempts are doomed to fail</i>'. -The envisioning exercise gave rise to a <i>long term vision</i> co-created by a multitude of stakeholders. This led to a vision that superseded the traditional forestry view and incorporated also functions deemed important by the general public and other stakeholders. In smaller forest patches different functions may compete (trade-offs) but on a landscape scale, these different functions can be developed or conserved next to each other. → This process is also referred to as reframing in the problem structuring phase: by bringing together a diversity of views and aspirations, more holistic approaches can be developed. In transition literature, system thinking is often formulated as a requisite to overcome persistent problems (Nevens et al., 2013) while development of a shared, long term vision is defined as strategic transition management (Loorbach, 2007). The collaboration between the partners was made official by the foundation of a statutory partnership. This highlights the <i>different role</i> of ANB. → In transition literature, forming new collaborations with unusual partners is</p>
<p>-First public consultation (2004–2005): A survey of 200 forest visitors was made. Eight discussion walks, ten discussion workshops and three feedback sessions in the municipalities with all stakeholders were organized. This information was complemented by many forest inventory and biodiversity monitoring studies.</p>		
<p>-First long term vision developed and statutory partnership founded (2006) The first long term vision documents were made (Indeherberg et al., 2006; Andriessen et al., 2007) and based on this the extensive management plans were developed (ABO NV, 2010; Econnection, 2012; Gorissen, 2006). The statutory partnership was officially founded in 2006.</p>		

(continued on next page)

Table 2 (continued)

Bosland timeline	The story of Bosland by the interviewees	Transition analysis of change trajectory of Bosland
	<p>-This long term vision was instrumental for setting up the action agenda and drawing up interim objectives, captured in subsequent Bosland forest management plans (ABO NV, 2010; Econnection, 2012; Gorissen, 2006).</p> <p>-To concretize the vision, extended sectorial long term visions were developed for tourism and wood production. On the basis of an extensive inventory of standing stock and an empirical growth model, a prognosis was made of wood stocks and harvest between 2010 and 2070 under different management scenario's (Moonen et al., 2011). The results under different scenarios were then discussed with relevant stakeholders and after an intense voting procedure, a consensus was found and a long term scenario for management for wood provision was selected. This long term vision is now reflected in the management plans that are implemented in the forest (Moonen et al., 2011) (1,2,6). This experimental approach of strategic forest management planning by long term scenarios was never used in Flemish forest management before (1,6).</p> <p>-Some actors felt excluded from this partnership (4,7) and still feel that they were not able to put a foot down on how the outline would look like.</p> <p>-The name 'Bosland' was chosen since it captured the essence of the long term vision and the project wanted the forest to be the homeland of all forest users (1).</p> <p>-The project gained momentum in 2010 when it was recognized as a strategic project in the framework of spatial planning by the responsible minister of the Flemish government. This recognition was essential in securing political support for 'Bosland' and in securing financial support for further enrolment (1,2). The project office was started and the general vision was translated to management plans.</p> <p>-The interviewees linked to a partner organization (1–5) confirmed a feeling of equal standing and co-ownership.</p> <p>-The two new partners are not forest land owners in the strict sense, but allowing them as co-owners in the project resulted in additional specific expertise and in new dynamics, such as new touristic brochures and a new project website (1, 2)</p> <p>The focus slightly broadened and with six partners it became more complex to reach consensus (3,5).</p>	<p>often referred to as a catalyst to give rise to new (often more radical) solutions (Rotmans, 2012). This is what Loorbach defined as tactical transition management (Loorbach, 2007).</p> <p>Envisioning as a point of departure for setting interim objectives (backcasting) is characteristic for transition management (Grin et al., 2010), but it is only genuinely instrumental if it is actually coupled to <i>effective strategy and action development</i> (a short term action agenda).</p> <p>→ This refers to operational transition management (Loorbach, 2007).</p> <p>-Even though participation was central to the approach, not all stakeholders were involved from the beginning. This coincides with the <i>selective participation</i> approach in transition management where in the beginning a select group of people is brought together: not representatives but open-minded, visionary individuals that are able to look beyond their stake (Loorbach and Rotmans, 2010).</p> <p>→ A transition management approach aims to give rise to a new discourse with higher ambition level that is fuelled by an appealing long term vision</p>
<p>-A new communication plan (2008) resulted in project recognition (2010)</p> <p>In 2008, a new communication plan was launched, including a new project name: "Bosland".</p> <p>In 2010 the project received a funding of 2,13 million euro of the "Limburg Sterk Merk" programme, supporting projects that promote a balanced development of the province of Limburg.</p>	<p>-To reflect the paradigm shift and truly <i>anchor</i> the partnership a new name was chosen to strengthen the bonds but also give a 'face' (recognition) to the project that has a more inclusive connotation.</p> <p>→ This is in line with the observation that developing a new language is important in transition processes.</p> <p>-By facilitating the change trajectory, ANB adopted a <i>new role</i> that better marries a top down and bottom up approach. Recognition of the project as a strategic project by the Flemish Government and funding allow further development of Bosland.</p>	<p>-Since the vision focussed on multiple services of Bosland, two new non-profit partners joined the partnership. This probably increased <i>legitimacy</i> of the partnership.</p> <p>This reflects the cyclic character of change processes. A vision is not regarded as an end point but as a cyclic (and reflexive) continuation of thinking–acting–assessing–(re) thinking–acting–assessing ... (Sondeijker et al., 2006; Nevens et al., 2013).</p>
<p>-Partnership widened (2011)</p> <p>In 2011 two non-profit partners joined the project, "Regionaal Landschap Lage Kempen" and "Tourisme Limburg".</p>	<p>-To keep stakeholders involved in the further development of Bosland, an <i>innovative and experimental approach</i> was adopted in the form of the Bosland parliament. This approach works well for the more specialised houses: the economic and ecological house, where focus and stakes are quite apparent. More difficulty arises with the establishment of a social house where focus and stakes are less clear. The establishment of a Bosland Parliament is an example of social innovation and reflects the <i>governance dimension</i> of the change trajectory (Grin et al., 2010). Hereby it contributes to <i>empowerment</i> of the various stakeholders.</p> <p>→ This aligns with the next phase of a transition trajectory: to set up transition experiments to learn about barriers and windows of opportunity for the new system setting (Grin et al., 2010).</p> <p>→ The establishment of a Bosland Parliament and its recognition within the management structure highlights the issue of agency and structure within transition literature (Grin et al., 2010) and the recognition that empowerment contributes to sustainability governance (Avelino, 2011).</p>	
<p>-Second public consultation (2011)</p> <p>An independent innovation centre was asked to organize a new participatory process in preparation of the masterplan. The "Bosland parliament" was founded.</p>	<p>-Five strategic goals for Bosland were proposed by the partners and discussed and evaluated on four brainstorm sessions in preparation of the masterplan (1,2,3,4,7).</p> <p>-However, some interviewees argued that four two hours brainstorm sessions are insufficient to be called structural participation (4,7) and that invitation of participants was quite ad hoc and not per definition representative for all relevant stakes (7).</p> <p>-The biggest challenge faced in the participation process was to keep stakeholders involved in forest management after the planning phases (1,2). A need to institutionalize the different participatory groups originated and eventually resulted in "the Bosland parliament", consisting of three equal "participative houses". These houses were filled up in parallel with the pillars of sustainable forest management (Flemish Region, 2003): an ecological house, a social house and an economical house. This innovative approach for participation was established to allow stakeholders' close and active involvement in the matters of Boland's forest management. In the management structure of the</p>	

-Second public consultation (2011)

An independent innovation centre was asked to organize a new participatory process in preparation of the masterplan. The “Bosland parliament” was founded.

project, the parliament is placed parallel to the different management bodies acting as a permanent sounding board (Fig. 4). Whenever a concrete project is started, a working group is founded with members of the steering committee, the management committee and of the relevant house.

→The economic house consists of people that are dependent on Bosland for their income. Two distinct groups can be distinguished: the wood sector and the tourism business. As this house consists mainly of professionals, meetings are not periodical, but the members only come together in directly relevant working groups (1,2,6).

→The ecological house includes people interested in biodiversity in Bosland, it unites volunteers and foresters. They come together periodically and have played a major role in inventories and research (1,2,3,7). The local branches of “Natuurpunt” argue that it is unfair that they are not included as a partner and only individuals are allowed in the ecological house. They feel neglected as an organization (7).

→The implementation of the social house however, is a big challenge. Every forest user, local or visiting should be able to join the social house. A regular meeting is hard to organize, because it is impossible to invite all users and the house is kept alive as different instruments involving all interested users. For now, follow-up guided tours for every action in the forest, information sessions on large-scale public activities and communication through the municipalities, in the newsletter and via the website offer the possibility for everyone to contribute (1,2).

-Critics highlight that the separation of the houses is contradictory to integrated forest management, where a balance should be found between economical, ecological and social values through direct dialogue (7). Despite the good intentions of most partners, saying that they want to involve all stakeholders and that they do so (1,2,5), criticism thus remains on the participatory approach (7). Some partners admit as well that there is still room for improvement on participation but that these processes are now often limited by time and budget (2,4).

-Masterplan launched (2012)

The final version of the master plan was presented and launched in June 2012 (Coordination cel Bosland, 2012)

-After the participatory process, five strategic goals were included and elaborated in the masterplan

→Bosland as a producer of ecosystem goods and services

→Bosland as a hotspot for biodiversity

Bosland as a participatory factor

→Bosland as a touristic and recreational pole of attraction

→Bosland as local socio-cultural heritage

-These strategic goals form the basis of further concrete planning (Coordination cel Bosland, 2012) and are the start of what the partners name the implementation phase.

-The original vision has been updated with the information of the new partners and the outcomes of the participatory exercises has been *consolidated* through the second public consultation. The master plan *links the long term vision to the short and medium term action agenda* and *embeds the outcomes of the change trajectory institutionally*.

→ This represents the last phase in transition management approaches: that of operational transition management (Loorbach, 2007).

coalition, an economic coalition, a local use coalition, a sustainable forest management coalition and a nature coalition. The introduction of sustainable forest management and collaboration on a landscape scale is thus still hampered due to the differences in viewpoints between the forest owners (Van Gossum et al., 2011).

Up till now, participation processes in forest management are predominantly information and consultation processes, described as one of the lower types of participation (Arnstein, 1969; Edelenbos and Monnikenhof, 2001). Informing stakeholders occurs only after decisions have been made, offering no chance to the public to influence the agenda or to express their viewpoints (Edelenbos and Monnikenhof, 2001). Consultation does allow stakeholders to present their opinion, but still only at the end of a development process (e.g. policy making) and in most cases this does not deliver much in terms of active support of stakeholders, cross sectorial collaboration, empowerment and ownership (Edelenbos and Monnikenhof, 2001). Higher types of participation such as advising, co-creation and self-management involve stakeholders from the beginning of a process and deliver more in terms of legitimacy and social learning (Edelenbos and Monnikenhof, 2001).

Forest managers are thus faced with enacting a transition from a rather monofunctional, expert-driven, and science-based system to a more inclusive and socially responsive model of decision-making (Beckley et al., 2005). To achieve this, well-functioning coordination mechanisms between different levels of government and stakeholder groups, which require shifting mindsets of forest managers, may prove to be necessary. To study which features have played an important role in the development of the co-owned Bosland forest, we analysed the history of Bosland through the lenses of transition theory, since this framework is especially well suited to study transition trajectories and to identify which features are going beyond traditional innovation approaches.

3. Results

3.1. The change trajectory of Bosland

The history of Bosland is presented in Table 2 and the most important steps are summarised in Fig. 3. Our analysis shows that several elements highlighted in transition approaches (Grin et al., 2010; Loorbach and Rotmans, 2010; Nevens et al., 2013) are present in the Bosland case: problem structuring or system analysis, envisioning, transition pathways or scenario development, experimenting and anchoring.

3.2. The way ahead

According to the partners the development of the master plan introduced an implementation phase in which the co-produced long term vision is translated in concrete management actions and in which the collaboration and unity will also be made visible in the forest (1–5). Participation of the public by means of the Bosland parliament remains crucial in this implementation. All partners have an optimistic and confident eye on the future of the project (1–5), despite the limits on time and budget and some criticisms on the project. At the moment the focus lies thus on collaboration with the current partners and on concrete management actions in the field (2,3,4). In line with adaptive management there will however be future moments of project evaluation and renewed broadening of the focus. Perhaps in the future, the collaboration with other forest and nature owners could be expanded. For instance collaboration with “Natuurpunt” (managing 356 ha in the area) and with the forest group (uniting 515 ha of approximately 180 private forest owners) could be strengthened to sustain and increase legitimacy and carrying capacity of the project and to work towards the desired outcomes.

4. Discussion and conclusion

In recent years, forest management in Western Europe is transitioning towards multifunctionality, combining principles of traditional silviculture and ecology with complexity and adaptation (Puettmann et al., 2009). Concerning participation and co-ownership principles, there is still a long way to go (Bruña-García and Marey-Pérez, 2014). Gradually however, the importance of public support for forest is settling in (Bruña-García and Marey-Pérez, 2014) and leading international studies (MEA, 2005; TEEB, 2011) make the link between citizens and forest (management) in both directions. Managing a forest coherently across a multitude of stakeholders and across multiple ecosystems requires a new management approach. It is especially in this regard that Bosland is an interesting case. The change trajectory towards Bosland gave rise to a new discourse with a higher ambition level inspired by a long term vision and fuelled by a new collaboration between different partners. In addition, it induced experimentation with new governance settings. The learning history approach allowed us to reconstruct the history of the development of Bosland. Analysing this change trajectory through transition lenses enabled us to structure the change process and to identify essential steps and innovative features that have been developed through a collective search and learning process of the new partnership and to relate these to the transition framework.

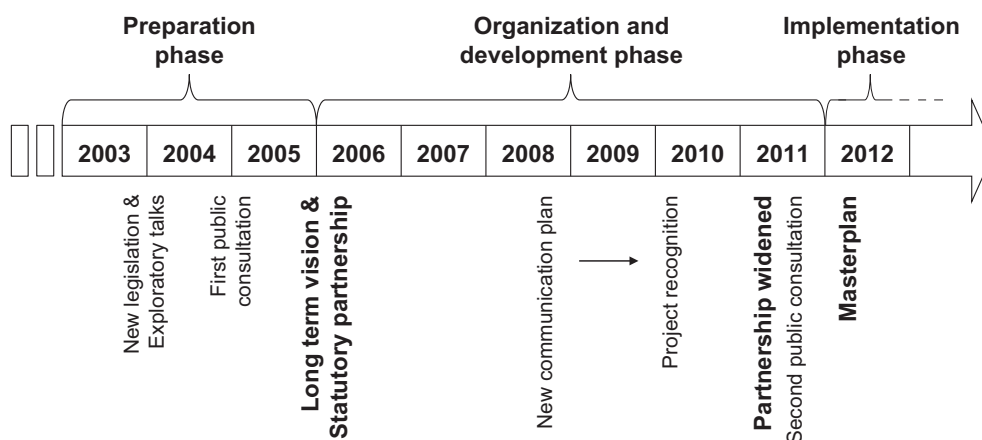


Fig. 3. Flowchart on the formation of Bosland. The development phases, as defined by the partners, are marked above the timeline, events below; the most important events are marked in bold. See Table 2 for more information about the events.

First, a distinctive feature of Bosland is that the traditional style and role of ANB changed from a modus of 'command and control' to a modus of 'facilitation for co-creation and collaboration' across different partners. This reflects a paradigm shift from fragmented management responsibilities (each partner manages own fragment of forest) to co-management for coherence on a landscape scale. To enable this shift, the traditional top-down approach gave way for a more bottom-up approach. From a transition perspective the following features are regarded as positive aspects in change trajectories: adoption of a facilitating style and role, co-creation of a shared vision through selective participation, initiation of new collaborations (Grin et al., 2010) and these aspects were all present in the change trajectory preceding Bosland.

Second, to go beyond 'innovation as usual', a new discourse needs to be developed with a higher ambition level (Rotmans, 2012). In transition approaches, this is achieved by linking a shared and co-created long term vision to a short term action agenda (backcasting) (Grin et al., 2010). Our learning history showed that this was the case in Bosland and that the vision helped to unite the different stakeholders and to give direction to the management plans and the masterplan. In general, every short term action in Bosland is in alignment with the long term vision and the concurrent strategic headlines.

Third, Bosland was co-constructed by a multitude of actors by means of a considerable focus on participation of stakeholders and forest users. Furthermore, this participatory approach will continue to play an important role in the future management of Bosland by means of the forest parliament and houses. As the learning history showed, participation started on a small scale involving a selected set of participants and gradually broadened to include more stakeholders and forest uses. The establishment of the Bosland parliament in parallel with other management structures is an example par excellence of broad social network building and can be regarded as first steps towards a governance approach within forest management. The evolution within participation is also in line with what Loorbach and Rotmans (2010) define as selective participation. The difference with traditional approaches is that selective participation does not aim to reach a consensual vision that gains wide support (but usually also leads to suboptimal solutions). Instead it is aimed to gain a deeply shared and owned vision with a high ambition level in a select group of key participants that is later on widened to include more actors.

Fourth, from a governance point of view, three different types of activity and new roles have been distinguished and conceptualized as strategic, tactical and operational transition management in transition literature (Loorbach, 2007). If we look at the history of Bosland, we can recognize these iterative steps: building a long term vision aligns with strategic TM, the formation of a new collaboration and the establishment of the Bosland parliament aligns with tactical TM and the vision inspired masterplan of Bosland aligns with operational TM.

Taken together these features are closely aligned to what is described as the outcome of a successful transition process (Rotmans, 2012). Our results also illustrate that the change trajectory of Bosland goes beyond what is considered as traditional innovation (see Table 1). Many aspects show that Bosland reflects a transition trajectory illustrating more fundamental innovation features such as:

- The starting point of setting up a collaboration to deal with the issues of complexity is more focused on learning in terms of social issues than learning related to 'restricted' solutions of forest management;
- The time frame clearly focused on the long term and the long term was coupled to a short term action agenda;
- The change trajectory described illustrates the process as a joint search and learning process with a high degree of exploration;
- The role of ANB shifted towards a role more focused on facilitation and co-creation;
- Innovative governance settings were introduced (e.g. the establishment of the Bosland parliament) that are more socially inclusive.

Furthermore, the collective search and learning process were fundamental for building reflexive capacity which is a necessary precondition

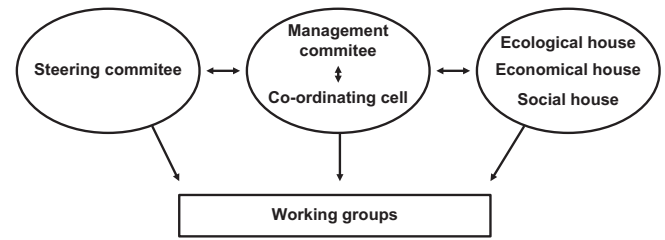


Fig. 4. Management structure of the Bosland project.

to support a long term process of sustainable development (Grin et al., 2010). Such search and learning processes can also be described as multi-actor social learning processes which are an important feature of governance in transition literature (Grin et al., 2010). Because of this innovative approach, we conclude that Bosland is a pioneering initiative, a frontrunner that put into practice a new way of forest management. This reconstruction and analysis of Bosland using novel frameworks to highlight the distinctive features might be of interest and of inspiration for the wider community involved in forest and nature management.

Of course, the change trajectory demonstrated in Bosland is still ongoing and is only a first step towards a possibly new mode of forest management. A more elaborate strategy (defined as deepening in transition literature) is needed to capture the lessons learnt and to document the change trajectory so that the information can be instrumental for repetition in other contexts (defined as broadening in transition literature). This learning history can contribute to this process and the transition framework proved to be very useful in this respect. However, more research is highly welcome to investigate such management practices further and to study the conditions that need to be fulfilled to scale up this new manner of forest management. To influence organization and management approaches on the regime level, more Bosland-like approaches are needed in other instances and contexts. It is of course hard to predict the future evolutions in the Flemish forest management regime. A strong focus on collaboration and participation seems to be a point of particular interest and in this respect some aspects of the Bosland approach seem valuable. However, in general Flemish forests are even more disintegrated physically and based on ownership. It is clear that an increased number of stakeholders for a reduced forest area will make the described approach more complex to implement. However we believe that also in these situations a common narrative and a strong collaboration can increase involvement of all forest users. More time and more experimenting will be needed to develop similar approaches, to evaluate the specific strengths of different methods and to observe possible entry in the regime.

Anyhow, the governmental Agency for Nature and Forest (ANB) has acquired a taste for the approach and is currently setting up a similar project in another forest and nature area in the province of Limburg (Duinengordel, 2012). With an eye to the ongoing transition in forest and nature management it will be highly interesting to observe the course of this project and to learn from the differences between the projects. Finally, more and mutually reinforcing success stories are needed for such novel management approaches to be scaled up. We conclude that Bosland can be regarded as a pioneering frontrunner case, not free of growing pains. Nevertheless, such pioneering cases as Bosland need to be described and analysed since they could be an essential stepping stone in the transition to more sustainable forest management systems.

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Appendix A. General interview guide

The generalized version of the questions used in the interview is listed below. Before every interview the relevance of each question was evaluated, looking at the history of the organization of the interviewee. Every main question was posed, the secondary questions were posed if extra information was necessary. Personalised questions were added whenever the interviewee came up with relevant elements for the transition analysis.

- a. Could you introduce yourself and your organization and explain how you got involved in the Bosland project?
 - a. How was the situation and the relation with the forest of your organization before the formation of the partnership?
 - b. What were your first thoughts on the idea of forming a partnership?
- b. Could you explain about the role of your organization in the project? (with help of a picture of the management structure, Fig. 3)
- c. To which extent was your organization able to participate?
 - a. Do you feel like your organization has played a role in the development of the long term vision? To which extent?
 - b. Do you feel like your organization has an impact on the actual management of the forests? To which extent?
- d. How is the relation of your organization with the (other) partners? Minor, equal, superior?
- e. According to you, did the Bosland parliament have an impact on the policy and management of the project?
 - a. To which extent did they participate?
 - b. How is the cooperation with the other bodies in the management structure?
- f. What were strengths, weaknesses, opportunities and threats in the Bosland project?
 - a. What were crucial factors/events/people... in the formation process?
 - b. What are things you look different at nowadays? What did you learn? What would you do different?
- g. How do you think the future of the Bosland project will look like?

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